INTERNATIONAL PRELIMINARY EXAMINATION REPORT (IPER) AMENDED PAGES 1-5A AND CLAIM 1

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Bottomer for Paper Sacks

The invention relates to a bottomer for paper sacks according to the preamble of claim 1.

Devices of this kind are used in the production of the widest variety of types of sacks. Among such bags count, for example, the so-called valve sacks, in which the valve labels are in general inserted during the production of the bottoms. The bottoms themselves are often designed as cross bottoms, as described, for example, in DE 090 145 48 U1 and DE 3020043 A1. In order to ensure that the bottoms and the inlaid valve labels are held together durably, segments of the bottoms are glued together with each other and/or with the valve labels with glue. This type of bottomer is known, for example, from DE 1 226 869 B.

For this purpose, glue is applied on the areas of the bottom folds, or the relevant papers, that are to be glued together, that is, on all areas on which the glue is to be applied and which are subsequently to be glued together with each other by bringing or folding them together.

As a rule, a format-appropriate application of the glue takes place by bringing one form part, which is fixed on a rotating cylinder, in contact with a glue roller or some other glue reservoir or glue transmission component, in course of a revolution of the cylinder, thereby resulting in the impingement of glue on it. In course of further rotation of the cylinder, the format plate transfers the glue stored on it onto the respective areas of the subsequent sack bottoms or labels to be glued.

To that end, the format part is provided with the characteristic elevations, which are adjusted to a specific bag format. For producing bags with different formats, the format parts are replaced in the bottomer. Application of glue in this manner has proved to be successful, because large quantities of starch glue, which are otherwise difficult to handle, can be applied neatly and in format-appropriate manner.

"Format-appropriate application of glue" means, in this context, that the application form is adapted to the type and the format of the sack. In this form of the application, the application is in general flat, whereby the edges of the form have special importance in context of the durability and the sealing of the bag.

Disadvantageous in that context is however that for these devices, several components for the transfer of the glue, for example, the format rollers and the format parts, must be maintained and also cleansed again after the use.

Therefore, the US 4 157 149 proposes a glue application device for packaging materials, which comprises a nozzle plate with glue valves arranged on it. The glue, which is fed to the glue valves, can be applied directly in the required format on the workpieces to be glued, without requiring format rollers or format parts. The valves are integrated in an application head. The application head has a bore, through which at least a part of the valves can be impinged with glue.

The aim of the present invention is to develop such bottomers further in such a fashion that the format rollers and the format parts can be dispensed with, and yet a format-appropriate application of the glue is still possible, in such a manner that the glue spread is even across the surfaces to be glued.

This problem is solved by the characterizing features of the claim 1.

According to that, the bottomer is provided with at least one gluing deck,

- which exhibits glue outlets, which can be fed selectively with glue, whereby, it is possible to define the format of the glue spread (6, 7, 8, 9) by selecting the glue outlets.
- whereby these glue outlets are associated with at least one application head (1),
- on which the valves (3) are mounted, and which valves can open and shut the connection between the glue outlets and a glue feed (4a, 4b, 13, 15) selectively.
- whereby this glue feed comprises glue feed lines (4a, 4b, 13) and at least one chamber (15), through which at least one part of the valves (3) is supplied with the glue and which has a diameter of at least 5 mm at least at one place and
- whereby the glue feed comprises at least one feeding line, which reaches through to the application head.

The application head can be provided with an application plate, in which the said glue outlets, on which the glue can be impinged selectively through the valves, are accommodated. In order to enable the flow of the glue through the opened valves, the glue is subjected to a pressure, which is greater than the ambient pressure. The supply of the valves with the glue takes place initially through the glue outlets, which feed the glue from a chamber. The valves are in contact with this chamber. By providing a diameter of m mm, it is ensured that the highly viscous glue, in general starch glue, can flow through the chamber, without getting stuck. However, the supply of the glue is thereby realized through a line which reaches through to the application head. In order that the glue can enter into the cavity of the application head, the feeder pipeline has grooves or holes in the area of the application head. By providing with this arrangement, the application head can also be mounted on the pipeline in a displaceable manner.

The chamber can thereby have a circular cross section. The cross section may deviate from a circular form, whereby the

cross section is dimensioned in such a manner, that a circle with a diameter of 5 mm can be inscribed, so that a continuous flow of glue to all the valves is ensured.

It is advantageous if the chamber has a diameter of at least 7 mm. Only with a diameter of at least this size, practically the same glue pressure prevails in all the valves. If the diameter is less than this, it is possible that the rear valves are impinged with low glue pressure in the direction of the flow of the glue, with the result that the glue traces generated by these valves are too thin.

In a preferred version, the chamber has, however, a diameter of at least 10 mm. This diameter is to be provided especially if the valves are arranged with a high density.

In another advantageous implementation according to the invention, the chamber is arranged within or directly at the application head, in order to maintain the distance between the chamber and the valves as small as possible. If the glue, which can be very viscous as already described, is impinged with pressure, there is no significant loss in the exercised pressure, if the connections from the chamber to the valves are short. In general, such connections have a length of only a few millimeters.

In an embodiment according to the invention, at least two valves in the spatial direction (y) are arranged in an overlapping manner, transversally to the direction of conveyance (x) of the parts of the sacks. Thereby, the valves are supplied with the glue from the same chamber. With this arrangement, it is possible to obtain a higher density in the valves in the spatial direction (y) and hence such glue traces, which can be switched on or off independently of each other. Such an arrangement of the valves comprises especially a two-row or a multi-row arrangement, whereby the rows extend in the spatial direction (y) and are arranged at a distance in the direction of conveyance (x) of the sack components. Spatial direction (y) means that spatial direction, which extends transversally to the direction of conveyance (x) of the sack components, but lies in a plane, which is specified by the sack components. The third spatial direction, which extends transversally to the direction of conveyance (x) of the sack components, and also lies transversally to the plane of the sack components, does not play any role in context of the present invention.

Further, it is particularly advantageous, if the ratio of the volume of the chamber to the total volume of all glue connections to and from the valves, which are supplied with the glue from the chamber, is at least 1.5. Only with this factor at least, by which the volume of the chamber is greater than the total volume of the glue pipelines, the pressure in all valves is the same pressure prevailing in the chamber without significant reduction. This ensures that in the case of open valves, the glue is pressed out with practically the same pressure at all the glue outlets, which are supplied with the glue through the chamber.

In an advantageous implementation according to the invention, at least one chamber has a bore in the application head. On both the front sides, the application head can be provided with the first bores, through which the glue is fed into the cavity, and a second bore can be provided, through which the glue is taken out again. Thereby the cross section areas of these inlet and outlet bores are smaller than the cross section of the chamber. In a preferred embodiment, the cross section of the chamber is about 40 mm^2 greater than the cross section of the glue feed lines.

Other advantageous embodiments according to the invention follow from the description of the objects, drawings and the other claims.
The individual figures show:

Fig. 1 An application head provided for the glue deck in the bottomer according to the invention

Fig. 2 An arrangement with several application heads

Fig. 3 Front view of an application head

Fig. 1 shows an application head 1, as it is used in a glue deck in a bottomer according to the invention. This application head 1 comprises an application plate 2, on which the valve 3 is mounted. The glue is fed to the application head 1 through the glue feed 4a. The glue comes out again from the application head passing through glue feed 4b. Unglued labels 5 are fed into the glue deck along the direction x.

To each valve 3, one or a group of the glue outlets is assigned on the side of the application plate 2 facing the unglued labels 5. The flow of the glue to the glue outlet can be established or interrupted by means of the assigned valve 3. It is possible in this manner to apply on the unglued labels 5 different glue traces, which run parallel to the direction of the conveyance x of the unglued label 5. Through regular opening and closing of the valve 3, a glue trace 5 with regular interruptions can be applied. Short glue traces 7, interrupted glue traces 8 and continuous glue traces 9 can also be made. If there is no glued label 5 below the application head 1, the glue flow is interrupted in all valves 3, so as not to make the glue deck unnecessarily dirty. In order to enable gluing of all the areas of the unglued labels in the direction y transversally to the direction of the conveyance, the provided application head 1 is displaceable also in that direction.

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New Patent Claim 1

1. Bottomer for cross bottom valve sacks for making cross bottoms on paper bags, which exhibit the following features:

- Folding devices, which make folds at the ends of the tube sections, from which the bags are produced
- one or more gluing stations, which provide glue spread to the areas of the folds to be glued and/or the labels provided with the bottom for gluing,
- at least one press compaction deck, in which the folded bottoms and the labels are brought in contact with each other and glued,

characterized in that

- at least one glue deck is provided for the labels and/or bottoms, which glue deck is equipped with glue outlets, which can be fed selectively, whereby, through the selection of the glue outlets, the format of the glue spread (6,7,8,9) can be defined
- these glue outlets are assigned to at least one application head (1), on which application head (1) a valve (3) is mounted, which can selectively open and shut the connection between the glue outlets and a glue feed (4a, 4b, 13),
- the glue feed comprises at least one chamber (15), through which at least one part of the valves (3) is fed with the glue and which has a diameter of at least 5 mm in at least one place,

and

- the glue feed comprises at least one pipeline (10), which reaches through up to the application head.